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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/609,247	06/26/2003	Kuniaki Yanagisawa	P/1071-1594	7756
2352	7590	01/05/2004	EXAMINER	
OSTROLENK FABER GERB & SOFFEN 1180 AVENUE OF THE AMERICAS NEW YORK, NY 100368403			NGUYEN, SANG H	
			ART UNIT	PAPER NUMBER
			2877	

DATE MAILED: 01/05/2004

Please find below and/or attached an Office communication concerning this application or proceeding.

## Office Action Summary

Application No.

10609247

Examiner

Sang H. Nguyen

Applicant(s)

YANAGISAWA ET AL

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

### Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply can cause this application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. (See 37 CFR 1.104(c).)

### Status

- 1) ☐ Responsive to communication(s) filed on 26 June 2003
- 2a) ☐ This action is FINAL. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

### Disposition of Claims

- 4) ☐ Claim(s) 1-20 is/are pending in the application.
- 4a) Of the above claim(s) 1-20 is/are withdrawn from consideration.
- 5) ☐ Claim(s) 1-20 is/are allowed.
- 6) ☒ Claim(s) 1-20 is/are rejected.
- 7) ☐ Claim(s) 1-20 is/are objected to.
- 8) ☐ Claim(s) 1-20 are subject to restriction and/or election requirement.

### Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on        is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. (See 37 CFR 1.85(a).)  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. (See 37 CFR 1.121(c).)
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

### Priority under 35 U.S.C. §§ 119 and 120

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).  
a) ☒ All b) ☐ Some c) ☐ None of:  
1 ☐ Certified copies of the priority documents have been received.  
2 ☐ Certified copies of the priority documents have been received in Application No.       .  
3 ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).  
\* See the attached detailed Office action for a list of the certified copies not received.
- 13) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application) since a specific reference was included in the first sentence of the specification or in an Application Data Sheet. 37 CFR 1.78.  
a) ☐ The translation of the foreign language provisional application has been received.
- 14) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121 since a specific reference was included in the first sentence of the specification or in an Application Data Sheet. 37 CFR 1.78.

### Attachment(s)

- 1) ☒ Notice of References Cited (PTO-891)  
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-648)  
3) ☐ Information Disclosure Statement(s) (PTO-1449) (Paper Notes)  
4) ☐ Interview Summary (PTO-613) (Paper Notes)  
5) ☐ Notice of Informal Patent Application (PTO-152)  
6) ☐ Other

## DETAILED ACTION

### *Claim Rejections - 35 USC § 112*

The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

Claim 8 is rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

Regarding claim 8: the phrase "an symmetric diaphragm having an aperture to stop said slit light in which the size of the aperture in the slit direction is smaller than the size of the aperture in the direction perpendicular to the slit direction" is not clear. For examination purposes, Examiner considers the limitation as "an asymmetric diaphragm having a slit aperture section to stop the slit light source, wherein a size of the aperture of the asymmetric diaphragm in the direction is smaller a size of the aperture of the slit light in the slit direction".

### *Claim Rejections - 35 USC § 102*

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

Claims 1, 9, 11, and 19 are rejected under 35 U.S.C. 102(b) as being anticipated by Ishihara (U.S. Patent No. 6,288,382).

Regarding claims 1, 9, 11, and 19: Ishihara discloses an optical three dimensional shape measuring apparatus and method, comprising:

- an optical system having a light source (1 of figure 2), a pattern of a slit light (101 of figures 2 and 3) considered to be a slit aperture of illuminating light unit (101 of figure 3), wherein the pattern of the slit light (101 of figure 2) is disposed on the optical axis (figure 2) of the light source (1 of figure 2), and a projection lens considered to be illuminating lens (3 of figure 2) for collecting the slit light on an object (A of figure 2) to be measured;
- an asymmetric diaphragm considered to an upper and a lower microlens (102, 103 of figures 2, 4-5) having a slit aperture section (104 of figure 2) to stop the slit light source (1, 101 of figure 2), wherein a size of the aperture of the asymmetric diaphragm in the direction is smaller a size of the aperture of the slit in the direction (compared figures 3 and 4 and col.6 lines 5-40);
- a detection unit considered to be a photodetector or a single photodetector (10 of figure 1) for measuring/detecting a three dimensional shape of the object on the basis of the slit light of reflected light from the object to be measured (col.1 lines 42-60). See figures 1-9.

### ***Claim Rejections - 35 USC § 103***

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the

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invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

Claims -- are rejected under 35 U.S.C. 103(a) as being unpatentable over Ishihara (U.S. Patent No. 6,288,382) in view of Maruyama et al (U.S. Patent No. 5,307,153) and Hori (U.S. Patent No. 5,608,529).

Regarding claims 2 and 12: Ishihara discloses all of feature in the claimed invention except for the pattern unit forms a plurality of slit lights. However, Maruyama et al teaches that it is known in the art to provide the pattern unit forms a plurality of slit lights (figure 1 and col.4 lines 10-15). It would have been obvious to one having ordinary skill in the art at the time the invention was made to modify optical three dimensional shape measuring apparatus and method of Ishihara with limitation the pattern unit forms a plurality of slit lights as taught by Maruyama et al for the purpose of irradiating light to an object to be measured.

Regarding claims 3-4 and 13-14: Ishihara discloses the light source (1 of figure 1) is less coherent than a laser beam (col.5 lines 55-57), wherein the light source is a white light source or white lamp (col.5 lines 55-56).

Regarding claims 5-6 and 15-16: Ishihara discloses the asymmetric diaphragm considered the upper and lower microlens array (102, 103 of figure 2) disposed between the light source (1 of figure 2) and projection lens (7 of figure 2).

Regarding claim 7-8 and 17-18: Ishihara teaches that a reflector considered to be a half mirror (4 of figure 2) for reflecting the slit light onto the object (A of figure 2) and receiving the reflected light from the object (A of figure 2).

Regarding claims 10 and 20: Ishihara discloses all of feature in the claimed invention except for a plurality of detectors. However, Hori teaches that it is known in the art to provide a plurality of detectors (10a, 10b, 10c of figures 8 and 9A). ). It would have been obvious to one having ordinary skill in the art at the time the invention was made to modify optical three dimensional shape measuring apparatus and method of Ishihara with limitation a plurality of detectors as taught by Hori for the purpose of detecting/measuring wide area of the object even on the extremely irregular surface to achieve a high precision in measurement.

### ***Conclusion***

The prior art made of record and not relied upon is considered pertinent to applicant's disclosure. Endo et al (6,426,835) discloses confocal microscope ; Tanaami (6,031,661) discloses confocal microscopic equipment ; Sorimachi et al (4,867,570) discloses three dimensional information processing method and apparatus; Morita et al (4,846,578) discloses surface characteristic measurement; Matsumoto et al (4,668,094) discloses apparatus for measuring the three dimensional shape of a solid object; Kata et al (3,843,227) discloses light dissecting optical system; or Dudley (3,683,773) discloses stereoscopic photography

Any inquiry concerning this communication or earlier communications from the examiner should be directed to examiner should be directed to Examiner Sang Nguyen whose telephone number (703)308-6426. The examiner can normally be reached on Monday through Friday from 8:30 am to 5:00 pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's

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supervisor, Mr. Frank Font, can be reached on (703)308-4881. The fax phone number for the organization where this application or proceeding is assigned is (703)308-7722 or 7724.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is (703)308-0956.

SN

Nguyen/ sn

December 23, 2003

Frank G. Font  
Supervisory Patent Examiner  
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for

  
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